	Application No.	Applicant(s)
Examiner-Initiated Interview Summary	09/928,004	WEARE, CHRISTOPHER BRUCE
	Examiner	Art Unit	
	Tamara Teslovich	2137	

All Participants:

(1) _Tamara Teslovich_.

(2) _Thomas Watson_.

Date of Interview: _25 May 2005_

Status of Application: _____

(3) _____.

(4) _____.

Time: _____

Type of Interview:
☒ Telephonic
☐ Video Conference
☐ Personal (Copy given to: ☐ Applicant   ☐ Applicant's representative)

Exhibit Shown or Demonstrated: ☐ Yes   ☐ No
If Yes, provide a brief description:

Part I.

Rejection(s) discussed:

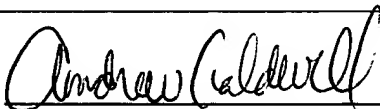Claims discussed:
_1-25_

Prior art documents discussed:

Part II.

SUBSTANCE OF INTERVIEW DESCRIBING THE GENERAL NATURE OF WHAT WAS DISCUSSED:
See Continuation Sheet

Part III.

☒ It is not necessary for applicant to provide a separate record of the substance of the interview, since the interview directly resulted in the allowance of the application. The examiner will provide a written summary of the substance of the interview in the Notice of Allowability.

☐ It is not necessary for applicant to provide a separate record of the substance of the interview, since the interview did not result in resolution of all issues. A brief summary by the examiner appears in Part II above.

_____
(Examiner/SPE Signature)

_____
(Applicant/Applicant's Representative Signature – if appropriate)

Summary of Record of Interview Requirements

Manual of Patent Examining Procedure (MPEP), Section 713.04, Substance of Interview Must be Made of Record
A complete written statement as to the substance of any face-to-face, video conference, or telephone interview with regard to an application must be made of record in the application whether or not an agreement with the examiner was reached at the interview.

Title 37 Code of Federal Regulations (CFR) § 1.133 Interviews
Paragraph (b)
In every instance where reconsideration is requested in view of an interview with an examiner, a complete written statement of the reasons presented at the interview as warranting favorable action must be filed by the applicant. An interview does not remove the necessity for reply to Office action as specified in §§ 1.111, 1.135. (35 U.S.C. 132)

37 CFR §1.2 Business to be transacted in writing.
All business with the Patent or Trademark Office should be transacted in writing. The personal attendance of applicants or their attorneys or agents at the Patent and Trademark Office is unnecessary. The action of the Patent and Trademark Office will be based exclusively on the written record in the Office. No attention will be paid to any alleged oral promise, stipulation, or understanding in relation to which there is disagreement or doubt.

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The action of the Patent and Trademark Office cannot be based exclusively on the written record in the Office if that record is itself incomplete through the failure to record the substance of interviews.

It is the responsibility of the applicant or the attorney or agent to make the substance of an interview of record in the application file, unless the examiner indicates he or she will do so. It is the examiner's responsibility to see that such a record is made and to correct material inaccuracies which bear directly on the question of patentability.

Examiners must complete an Interview Summary Form for each interview held where a matter of substance has been discussed during the interview by checking the appropriate boxes and filling in the blanks. Discussions regarding only procedural matters, directed solely to restriction requirements for which interview recordation is otherwise provided for in Section 812.01 of the Manual of Patent Examining Procedure, or pointing out typographical errors or unreadable script in Office actions or the like, are excluded from the interview recordation procedures below. Where the substance of an interview is completely recorded in an Examiners Amendment, no separate Interview Summary Record is required.

The Interview Summary Form shall be given an appropriate Paper No., placed in the right hand portion of the file, and listed on the "Contents" section of the file wrapper. In a personal interview, a duplicate of the Form is given to the applicant (or attorney or agent) at the conclusion of the interview. In the case of a telephone or video-conference interview, the copy is mailed to the applicant's correspondence address either with or prior to the next official communication. If additional correspondence from the examiner is not likely before an allowance or if other circumstances dictate, the Form should be mailed promptly after the interview rather than with the next official communication.

The Form provides for recordation of the following information:
- Application Number (Series Code and Serial Number)
- Name of applicant
- Name of examiner
- Date of interview
- Type of interview (telephonic, video-conference, or personal)
- Name of participant(s) (applicant, attorney or agent, examiner, other PTO personnel, etc.)
- An indication whether or not an exhibit was shown or a demonstration conducted
- An identification of the specific prior art discussed
- An indication whether an agreement was reached and if so, a description of the general nature of the agreement (may be by attachment of a copy of amendments or claims agreed as being allowable). Note: Agreement as to allowability is tentative and does not restrict further action by the examiner to the contrary.
- The signature of the examiner who conducted the interview (if Form is not an attachment to a signed Office action)

It is desirable that the examiner orally remind the applicant of his or her obligation to record the substance of the interview of each case. It should be noted, however, that the Interview Summary Form will not normally be considered a complete and proper recordation of the interview unless it includes, or is supplemented by the applicant or the examiner to include, all of the applicable items required below concerning the substance of the interview.

A complete and proper recordation of the substance of any interview should include at least the following applicable items:
1) A brief description of the nature of any exhibit shown or any demonstration conducted,
2) an identification of the claims discussed,
3) an identification of the specific prior art discussed,
4) an identification of the principal proposed amendments of a substantive nature discussed, unless these are already described on the Interview Summary Form completed by the Examiner,
5) a brief identification of the general thrust of the principal arguments presented to the examiner,
    (The identification of arguments need not be lengthy or elaborate. A verbatim or highly detailed description of the arguments is not required. The identification of the arguments is sufficient if the general nature or thrust of the principal arguments made to the examiner can be understood in the context of the application file. Of course, the applicant may desire to emphasize and fully describe those arguments which he or she feels were or might be persuasive to the examiner.)
6) a general indication of any other pertinent matters discussed, and
7) if appropriate, the general results or outcome of the interview unless already described in the Interview Summary Form completed by the examiner.

Examiners are expected to carefully review the applicant's record of the substance of an interview. If the record is not complete and accurate, the examiner will give the applicant an extendable one month time period to correct the record.

Examiner to Check for Accuracy

If the claims are allowable for other reasons of record, the examiner should send a letter setting forth the examiner's version of the statement attributed to him or her. If the record is complete and accurate, the examiner should place the indication, "Interview Record OK" on the paper recording the substance of the interview along with the date and the examiner's initials.

Continuation of Substance of Interview including description of the general nature of what was discussed: Examiner disclosed to Mr. Watson that claim 2 placed in independent form would in fact be allowable subject matter. Examiner also requested that applicant include within the abstract the limitations of claim 2, delete the first paragraph of the specification relating to disclaimers, and update the priority paragraph including current application and patent numbers in place of the presently listed attorney docket numbers. .

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:
Christopher B. Weare   **Confirmation No.:** unknown

Application No.: 09/928,004   **Group Art Unit:** unknown

Filing Date: August 10, 2001   **Examiner:** Tamara Teslovich

For: A System and Method for Audio Fingerprinting

Proposed Draft Response for Examiner's Amendment

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

REPLY PURSUANT TO 37 CFR § 1.111

In response to the Telephonic Discussion held with the Examiner on 5-25-05, reconsideration is respectfully requested in view of the amendments and/or remarks as indicated below:

    ☒   **Amendments to the Specification** begin on page 2 of this paper.

    ☒   **Amendments to the Claims** are reflected in the listing of the claims which begins on page 4 of this paper.

    ☐   **Amendments to the Drawings** begin on page   of this paper and include an attached replacement sheet.

    ☒   **Remarks** begin on page 10 of this paper.

Amendments to the Specification:

Please replace (delete) the paragraph beginning on page 1, line 3 with the following

rewritten paragraph:

-- ~~Disclaimer:~~

~~The names of actual recording artist mentioned herein may be the trademarks of their~~

~~respective owners. No association with any recording artist is intended or should be inferred.~~

-

Please replace the paragraph beginning on page 1, line 7 with the following rewritten

paragraph:

--Cross Reference to Related Application:

This application is related to and claims priority under 35 U.S.C. § 119(e) to U.S.

Provisional Patent Application Serial No. 60/224,841 filed August 11, 2000, entitled

"AUDIO FINGERPRINTING", the contents of which are hereby incorporated by reference

in their entirety. This application relates to U.S. Patent <u>Ser. No. 09/900,230, filed July 6,</u>

<u>2001, U.S. Patent 6,545,209B1, issued April 8, 2003, U.S. Patent Ser. No. 09/934,071, filed</u>

<u>August 20, 2001, U.S. Patent Ser. No. 09/900,059, filed July 6, 2001, U.S. Patent Ser. No.</u>

<u>09/934,774, filed August 21, 2001, U.S. Patent Ser. No. 09/935,349, filed August 21, 2001,</u>

<u>U.S. Patent 6,657,117, issued December 2, 2003, U.S. Patent Ser. No. 09/904,465, filed July</u>

<u>13, 2001, U.S. Patent 6,748,395, issued June 8, 2004, and U.S. Patent Ser. No. 09/942,509,</u>

<u>filed August 29, 2001</u>~~Appln. Nos. (Attorney Docket Nos. MSFT-0577 through MSFT-~~

~~0586)~~.--

Please replace the Abstract with the following rewritten Abstract:

--A system and methods for the creation, management, and distribution of media entity

fingerprinting are provided. In connection with a system that convergently merges perceptual

and digital signal processing analysis of media entities for purposes of classifying the media

entities, various means are provided to a user for automatically processing fingerprints for

media entities for distribution to participating users. Techniques for providing efficient

calculation and distribution of fingerprints for use in satisfying copyright regulations and in

facilitating the association of meta data to media entities are included. In an illustrative

implementation, the fingerprints may be generated and stored allowing for persistence of

media from experience to experience. In various non-limiting embodiments, the processing

of fingerprints includes calculating the average information density of the media entities,

determining the standard deviation of the calculated information of the media entities,

calculating the average critical band energy of the the media entities, calculating the average

standard deviation of the critical band energy of the media entities, determining the play-time

of the media entities and processing the information density, the standard deviation of the

information density, the critical band energy, the standard deviation of the critical band, and

the play time to produce a bit-sequence representative of the fingerprint.--

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

1.   (Currently Amended) A method to create a fingerprint for media entities, comprising:

reading data indicative of a media entity desiring at least one fingerprint, said media entity data containing a sequence of random bits having a length N; ~~and~~

processing said media entity data in accordance with at least one fingerprinting algorithm, said fingerprinting algorithm employing bit-to-bit comparisons and at least one approximation technique to process fingerprints, wherein said processing further comprises:

calculating the average information density of said media entities;

determining the standard deviation of the calculated information of said media entities;

calculating the average critical band energy of the said media entities;

calculating the average standard deviation of the critical band energy of said media entities;

determining the play-time of said media entities; and

processing said information density, said standard deviation of said information density, said critical band energy, said standard deviation of said critical band, and said play time to produce a bit-sequence representative of said fingerprint.

2.   (Canceled).

3.   (Currently Amended) The method as recited in claim 1 [[2]], further comprising the step of comparing said bit sequence of said created fingerprint with said bit sequence of said data indicative of said media entities.

4.   (Original) The method as recited in claim 3, wherein said comparing step contemplates the use of the Hamming distance between the fingerprint bit and the media entity bit to determine the probability that said fingerprint and said media entity bits differ by Hamming distance according to the relation,

$$P(M) = e^{-(M-N/2)^2/2\sigma^2} / \sigma\sqrt{2\pi} ,$$

wherein σ is the standard deviation of the distribution expressed as,

$$\sigma = \sqrt{N/2}.$$

5.   (Original) The method as recited in claim 4, further comprising the step of calculating the probability that the Hamming distance between two sequences of random bits is less than a value M' according to the relation,

$$P(M < M') = \int_0^{M'-1} e^{-(x-N/2)^2/2\sigma^2} / \sigma\sqrt{2\pi} \, dx.$$

6.   (Currently Amended) The method as recited in claim 1 [[2]], wherein the average information density is taken to be the average entropy per processing frame of said media entities.

7.   (Original) The method as recited in claim 6, wherein said average information density is determined by the relation,

$$S_{ave} = \frac{\sum_j S_j}{N}$$

wherein, N is the total number of processing frames.

8.   (Original) The method as recited in claim 7, wherein S_j is determined by the relation,

$$S_j = -\sum_n b_n \log 2(b_n),$$

where b_n is the absolute value of the nth bin of the normalized real FFT of the processing frame.

9.   (Original) The claim as recited in claim 8, where in the average standard deviation of the information density of said media entities is determined by the relation,

$$S_{std} = \frac{\sqrt{\sum_j (S_{ave} - S_j)^2}}{N}.$$

10.   (Currently Amended) The method as recited in claim $\underline{1}$ [[2]], wherein the average critical band energy is determined by the relation,

$$\vec{C}_{ave} = \frac{\sum_j \vec{C}_j}{N}$$

wherein, $\vec{C}_j$ is a vector of values consisting of the critical band energy in each critical band and N is the total number of processing frames.

11.   (Currently Amended) The method as recited in claim $\underline{1}$ [[2]], wherein the average standard deviation of the critical band energy is determined by the relation,

$$C_{std} = \frac{\sqrt{\sum_j (C_{ave} - C_j)^2}}{N}$$

wherein, N is the total number of processing frames.

12.   (Original) A computer readable medium bearing computer executable instructions for carrying out the method of claim 1.

13.   (Original) A modulated data signal carrying computer executable instructions for carrying out the method of claim 1.

14.   (Original) A computing device comprising means for carrying out each of the steps of the method of claim 1.

15.   (Original) A system to create a fingerprint for media entities comprising:

a sampling system;

a processing system cooperating with said sampling system to generate said fingerprints, said processing system comprising one more means to calculate at least one of information density of said media entities, standard deviation of the information density of said media entities, average critical band energy of said media entities, standard deviation of the critical band energy of said media entities, or the play-time of said media entities; and

a communications interface, said communications interface cooperating with said processing system to communicate created fingerprints to participating users.

16.   (Original) The system as recited in claim 15, wherein said sampling system prepares at least one sampling portion of said media entities for communication to said processing system.

17.   (Original) The system as recited in claim 16, wherein said processing system cooperates with said sampling system to process said sampling portion when generating said fingerprint.

18.   (Original) The system as recited in claim 15, wherein said processing system comprises a computing environment capable of performing said calculations.

19.   (Original) The system as recited in claim 18, wherein said computing environment comprises any of a stand-alone or networked computing environments.

20.   (Original) The system as recited in claim 15, wherein said communications interface comprises any of a fixed-wire LAN, a wireless LAN, a fixed-wire WAN, a wireless WAN, a fixed-wire extranet, a wireless extranet, a fixed-wire intranet, a wireless intranet, peer-to-peer computer network, the wireless Internet, and the fixed-wire Internet.

21.   (Original) The system as recited in claim 15, wherein said processing system is a component of a media content analysis and distribution system.

22.   (Original) A method to identify media entities using fingerprints, comprising the steps of:

      calculating a fingerprint in accordance with the steps of claim 1 of said media entities;

      comparing said calculated fingerprint to already calculated fingerprints found in a cooperating fingerprint data store; and

      evaluating the results of the comparison.

23.   (Original) The method as recited in claim 22, further comprising the step of communicating the results of said evaluation step to participating users, said participating users comprising any of: cooperating media entity processing systems, end-users, regulatory agencies.

24.   (Original) A method to authenticate media entities to ensure compliance with copyright regulations by employing fingerprints, comprising the steps of:

      calculating a fingerprint in accordance the steps of claim 1 of said media entities;

      comparing said calculated fingerprint to fingerprints of authorized media entities stored in a cooperating data store; and

      evaluating the results of the comparison to return a response indicative whether authorization was granted.

25.   (Original) The method as recited in claim 24, further comprising the step of denying distribution access to media entities that are determined to be unauthorized.

26-30. Canceled.

REMARKS

Upon entry of the present amendment, claims 1 and 3-25 will be pending in the present application. Claims 1 and 15 are the independent claims. On Friday, May 20, 2005, the Examiner contacted the undersigned indicating that claims 26-30 would be subjected to a telephonic restriction requirement. In response, Applicant's undersigned attorney telephonically elected to pursue the subject matter of claims 1-25, and accordingly, have canceled/withdrawn claims 26-30 from consideration in the present application, reserving the right to pursue those claims in a continuation application.

The undersigned was again contacted by the Examiner on Wednesday, May 25, 2005, in response to which Applicant graciously accepted the Examiner's invitation to amend claim 1, by incorporating the subject matter of dependent claim 2 therein, in order to patentably define claim 1 over the prior art before the Examiner. Applicant has thus so amended claim 1 herein, and Applicant has renumbered claims 3, 6, 10 and 11 to correct dependency claiming information for the claims formerly depending from claim 2. The Examiner also indicated that independent claim 15 was allowable in its as-filed form.

Also, at the direction of the Examiner, Applicant has deleted the trademark disclaimer at the front of the present application, in order to present the information concerning related applications first in the present application. Further, Applicant has incorporated the subject matter of claim 2 into the Abstract of the invention at the direction of the Examiner. No new matter has been added.

Accordingly, it is Applicant's understanding that the present application including claims 1 and 15, and their corresponding dependent claims, are in condition for allowance.

CONCLUSION

Applicant believes that the present Amendment is responsive to each of the points

raised in the telephonic interview with the Examiner, and submits that Claims 1 and 3-25 of

the application are in condition for allowance. Favorable consideration and passage to issue

of the application at the Examiner's earliest convenience is earnestly solicited.

Date: May 25, 2005
                                                    _____
                                                    Thomas E. Watson
                                                    Registration No. 43,243

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